

ACCIDENT PREVENTION IN MARYLAND

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THE IMPORTANCE of accidents as a cause of mortality has been highlighted by the continued drop in the percentage of deaths from other causes, particularly the communicable diseases. Among children over 1 year of age and adolescents, accidents now rank as the leading cause of death, primarily because preventive medicine has succeeded in lowering the mortality rate from infectious diseases. Unfortunately, little effort has been made to apply the same techniques toward the prevention of accidents.

Considerable progress has been made by industry in the application of safety measures to protect workers. Also, safeguards have been installed in industrial products, such as automobile seat belts to protect the wearers and reduce the extent and severity of injuries, and other equipment, such as improved braking systems, directed toward reduction of motor vehicle accidents. More programs are being undertaken toward prevention of home accidents. However, changes by architects and home builders are not keeping pace with the technical knowledge available for implementing modification, and they are falling behind in the face of technological changes which increase the built-in hazards of the home.

Each year more people in Maryland between the ages of 1 and 35 die from accidents than from any other cause. In 1963 approximately 1,500 persons of all ages died from accidents in the State. Accidents rank fourth among causes of death of Maryland citizens of all ages. Al-

though this figure seems large for a small State, the total accident statistics reflect even greater tragedy when nonfatal injuries are added. U.S. National Health Survey statistics projected for Maryland show an average annual number of 847,686 injuries of all kinds. Of these, 199,206 are bed disabilities and 39,821 require hospitalization. Total cost figures for medical care are not readily available, but in 1963 the inpatient hospital care alone for the indigent accident victims cost the State more than \$2 million.

Motor vehicle accidents account for approximately 40 percent of all the accidental deaths in Maryland. Also, according to data of the U.S. National Health Survey, 1.6 of every 100 persons are injured in moving motor vehicle accidents. These injuries cause 49.1 days of restricted activity, 14.6 days of bed disability per 100 persons, and loss of 25.3 workdays per 100 persons in the labor market.

Home accidents account for approximately 30 percent of all accidental deaths in Maryland. The National Health Survey has estimated that 44.9 percent of all disabling injuries are suffered in or around the home. This percentage is three times greater than the 14.3 percent of injuries which occur in industrial places.

Public accidents are the third leading cause of accidental death. These include death from accidents other than motor vehicle, home, and work. During 1962, 376 Maryland citizens were killed in public places; 75 of these persons drowned.

Work accidents claimed about 8 percent of the total accidental death toll. This low percentage points up the value of good accident control measures which can be stimulated by health departments.

Accident prevention has been an integral part of the activities of the Maryland State Depart-

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ment of Health for many years. In 1954 a home accident prevention unit, supported by a 4-year grant from the Kellogg Foundation, was established. However, funds to continue this unit were not appropriated by the 1958 General Assembly of Maryland, and this activity was necessarily discontinued when the grant expired. But accident prevention activities were continued by local health departments.

A request was submitted in 1961 to the Public Health Service's Division of Accident Prevention for assignment of a public health adviser to direct a statewide accident prevention program, and this request was granted in July 1962.

The plan proposed for this program included: (a) all medical aspects of traffic safety in which the State health department has particular competency, (b) poison control, (c) home safety, to continue the program dropped in 1958, and (d) inservice training of health department personnel.

Maryland's accident prevention activities are planned in cooperation with other organizations and agencies engaged in such activities at the State, county, and local levels. The aim is to develop strong community programs in varied phases of accident prevention through continuous cooperation and collaboration with the local health departments. Most of these organizations and agencies are represented in the membership of the technical advisory committee to the accident prevention section, which assists in developing programs.

Emergency Medical Care

A subcommittee, organized to investigate the current status of services offered by ambulance and rescue-squad personnel, recommends training programs, regulations, and licensing requirements necessary to provide efficient medical care and transportation for the sick or injured before they are taken to a proper medical facility.

In 1963 Maryland initiated a series of statewide, 2-day training sessions in emergency medical care procedures for ambulance and rescue-squad workers. The sessions, conducted at Baltimore city hospitals, are sponsored by the American College of Surgeons, Medical and Chirurgical Faculty of Maryland, Public

Health Service, and the State health department. A \$2,400 contract, awarded by the Public Health Service's Division of Accident Prevention for a pilot study, helped to establish this training program. Maryland has pioneered in training ambulance and rescue-squad workers to perform mouth-to-mouth resuscitation and closed-chest heart massage, and this financial support was given in recognition of the need for a coordinated program to provide training for such workers throughout the State.

The sessions feature techniques such as handling persons with back or head injuries, emergency obstetrical delivery, hemorrhage, shock, poisoning, attempted medical suicide, strokes, and radioactive contamination. Safety and traffic principles and legal aspects of ambulance service are discussed. Also, films are shown in conjunction with instruction in mouth-to-mouth resuscitation, closed-chest cardiac massage, and transportation of delirious or unruly persons.

Improvement of the quality of care at the scene of the accident and en route to the hospital is still urgently needed. The accident prevention section plans to undertake a cooperative program with the various interested organizations within the State toward better organization, administration, and operation of ambulance services. The broad objective of this program is to minimize the consequences of accidental injury and other medical emergencies by providing guidelines for an effective emergency medical care system. The program will include development and application of methods to improve patient care, as well as field studies, research, and research consultation.

Poison Control Centers

The chief of the accident prevention section, who is the State coordinator for poison control centers, receives reports from each of the 10 centers in Maryland. He compiles an annual report, which is distributed to local health departments and to members of the medical and teaching professions. He also surveys all the centers annually to evaluate their operations and suggest necessary changes.

The accident prevention committee of the

Maryland chapter of the American Academy of Pediatrics has established a master poison control center in Maryland. The center provides technical information on toxicity to physicians, supplemental investigations for other poison control centers, and first-aid information to the general public. The center is a focal point for poison prevention education and serves as a catalyst for poison prevention programing throughout the State.

Initial funds for this center have been budgeted and matched by the Wilson Foundation to support the first 2 years of operation, 1964 to 1966. It will be fully supported by the State health department with State funds after the foundation withdraws its support.

Home Safety

Home accidents are the second leading cause of injury in the State. There are several areas in home safety in which the accident prevention section will develop specific programs. These include fire, falls, glass-door injuries, cutting and piercing injuries, gun safety, and poisonings. Schools in the use of a fire demonstration kit are anticipated. The purpose of this demonstration kit is to teach some of the basic facts about fire, its use, and its control. The kit also demonstrates how two of our most valuable servants, petroleum products and electricity, can cause a tragic fire when misused. This unique kit was produced cooperatively by the Missouri Department of Public Health and Welfare, the Arkansas State Board of Health, the Mississippi County (Arkansas) Health Department, and the Public Health Service's Family Safety Branch of the Division of Accident Prevention.

Pedestrian Safety

Deaths and injuries to pedestrians are of primary interest. Action programs of education to reduce these losses from motor vehicle accidents are planned as part of the overall accident prevention plan of the department.

Drinking Drivers

Automotive accidents and the drinking driver has long been a subject of much controversy. However, it is generally felt that the improper

use of alcohol has been a major factor in at least 50 percent of the traffic fatalities in Maryland. The State health department's accident prevention section in cooperation with the department of mental hygiene is investigating the possibility of establishing, in conjunction with the traffic courts, an alcoholism rehabilitation program for the driver arrested and sentenced for driving under the influence of alcohol. This program would be operated similarly to the current driver education school operated by the department of motor vehicles. However, the emphasis will be on factors which precipitate the misuse of alcohol.

Inservice Training

Two areas must be considered in inservice training: awareness by public health workers of their responsibilities for accident control as a public health problem, and regard by these workers for their own safety and that of their families. Future plans for inservice training include a monthly publication for public health personnel which deals with specifics in accident control, local workshops in accident prevention techniques, consultation with local health departments on local problems in accident prevention, driver education for operators of State-owned vehicles, and monthly 1-hour sessions for personnel in the central office on safety at home, recreation, work, and so forth.

Future Needs

With the growing awareness of the health department's role in accident prevention, greater demands will be made for assistance from the State and local agencies interested in accident control. Yet programs and services cannot be expanded at this time owing to limitations of staff and funds. More data are needed to evaluate properly the specific accident problems in Maryland and to provide a basis for program development and implementation.

Because overall accident prevention in public health agencies is a relatively new concept, there is a need for expansion of training in program development in accident control for State and local health department personnel. Also, specific programs and demonstration techniques

are needed in the various aspects of accident prevention that can be used by local health department and community personnel.

Indisputably, to a large extent accidents are preventable and development of an effective prevention program is imperative. But such an endeavor requires a great deal more research into accident causes, which are diverse and complex, involving a multiplicity of environmental factors and human elements. The investigation of such multiple causes can be done best through carefully designed and controlled research by experts in many different fields. This is too large and complex a problem to be carried out by Maryland alone or any individual State.

A Federal research facility for accident prevention would offer the means for intensified and coordinated research. It would operate on a large enough scale to make feasible the use of the most modern technological aids in research. Use of computers in accident prevention research could help to produce research findings more quickly and hasten the establishment of a sound control program. In the past, in both accident research and accident prevention the

many important variables which constitute the human factors have been the most neglected. Accidents that are the results of human factors constitute 70 percent of all accidents.

The Public Health Service, through its various facilities and institutes, provides effective assistance in the control of communicable and chronic diseases by research and dissemination of knowledge to the medical and health professions. It could also materially assist the medical profession and public health authorities in accident prevention if it were given the authority and funds to establish a research facility for this purpose.

Establishment of such a facility on a Federal level would in no way interfere with the prerogatives and responsibilities of the many other agencies working in accident prevention. Rather, it would complement and support them. Since a high percentage of accidents is now known to be caused by human behavior and the injuries resulting from them constitute a public health problem, research in this field should be the responsibility of persons thoroughly knowledgeable in health matters.

Nucleic Acid Structure Determined

A team of Cornell and Federal scientists, working at Cornell University at the U.S. Plant, Soil and Nutrition Laboratory has determined the structure of ribonucleic acid (RNA), a carrier of hereditary messages.

The researchers, headed by Dr. Robert W. Holley, professor of biochemistry at the New York State College of Agriculture and the Division of Biological Sciences, determined the sequence of parts (nucleotides) that make up the alanine transfer RNA by a series of breakdown experiments.

An enzyme was used to separate the nucleotides into groups and other substances to cause further separation into small groups and individual units. By analyzing the fragments and comparing the various sets of breakdowns, the investigators were able to piece together the entire structure.

Scientists point out that such knowledge might eventually lead to controls over the formation of life itself, since DNA holds the specification for an individual and RNA's start transferring these specifications from the moment an embryo begins to develop.